



# Cells to Society: The Canadian Longitudinal Study on Aging

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# The Canadian Longitudinal Study on Aging (CLSA)

- Strategic initiative of CIHR; on Canadian research agenda since 2001
- Team of 3 principal investigators, more than 160 co-investigators from 26 institutions
- Multidisciplinary - biology, genetics, medicine, psychology, sociology, demography, nursing, economics, epidemiology, nutrition, health services
- Largest study of its kind to date in Canada for breadth and depth: following 50,000 Canadians for 20 years



# Overall Aims of the CLSA



- To examine aging as a dynamic process
- To investigate the inter-relationship among intrinsic and extrinsic factors from mid life to older age
- To address aging from cell to society
- To capture the transitions, trajectories and profiles of aging
- To provide infrastructure and build capacity for sustained high quality research on aging in Canada

# Study Overview

**50,000 women and men aged 45 - 85 at baseline**

**Tracking Cohort  
20,000  
Randomly selected within  
Provinces**

**Comprehensive Cohort  
30,000  
Randomly selected  
within 25-50 km of 11 sites**

**Questionnaire  
• By telephone (CATI)**

**Questionnaire  
• In person, in home (CAPI)**

**Clinical/physical tests  
Blood, urine (optional)  
• At Data Collection Site**

**Interim contact, Follow up every 3 years**

**Data Linkage**

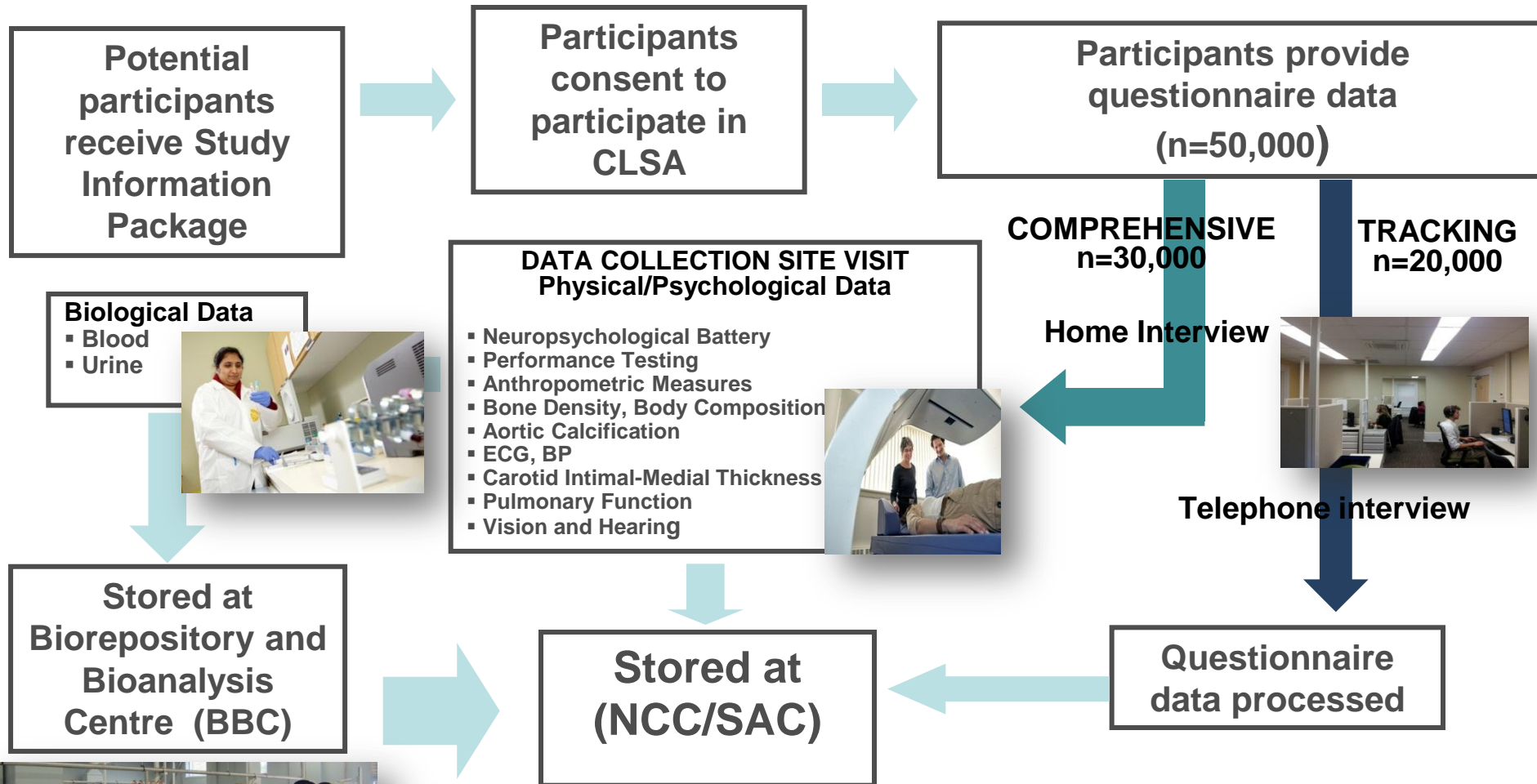


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# Representative Sample Frame for Recruitment

- Statistics Canada: CCHS 4.2  
Healthy Aging Survey
- Health Ministries: Health Insurance  
Card registration databases
- Random Digit Dialing

# Standardized, Centralized Process



# Depth and Breadth of CLSA

- **DEMOGRAPHIC**
  - Education
  - Marital status
  - Ethnicity
- **HEALTH BEHAVIOURS**
  - Smoking, alcohol
  - Nutritional risk
  - Health care utilization
  - Medication use
  - Supplement use
- **HEALTH STATUS**
  - General health
  - Women's health
  - Chronic conditions, symptoms
  - Oral health
- **PHYSICAL**
  - Injuries, falls
  - Physical activity
  - Pain, discomfort
  - Functional status
  - ADL, IADL
- **PSYCHOLOGICAL**
  - Cognition—Executive function, memory, psychomotor speed
  - Depression
  - Psychological distress
  - Veteran identifier
  - Satisfaction with life
  - PTSD
- **SOCIAL**
  - Social networks
  - Social support
  - Social participation
  - Online communication
  - Social inequality
  - Care receiving
  - Care giving
  - Retirement status
  - Labour force participation
  - Retirement planning
  - Transportation
  - Mobility, Migration
  - Built environments
  - Home ownership



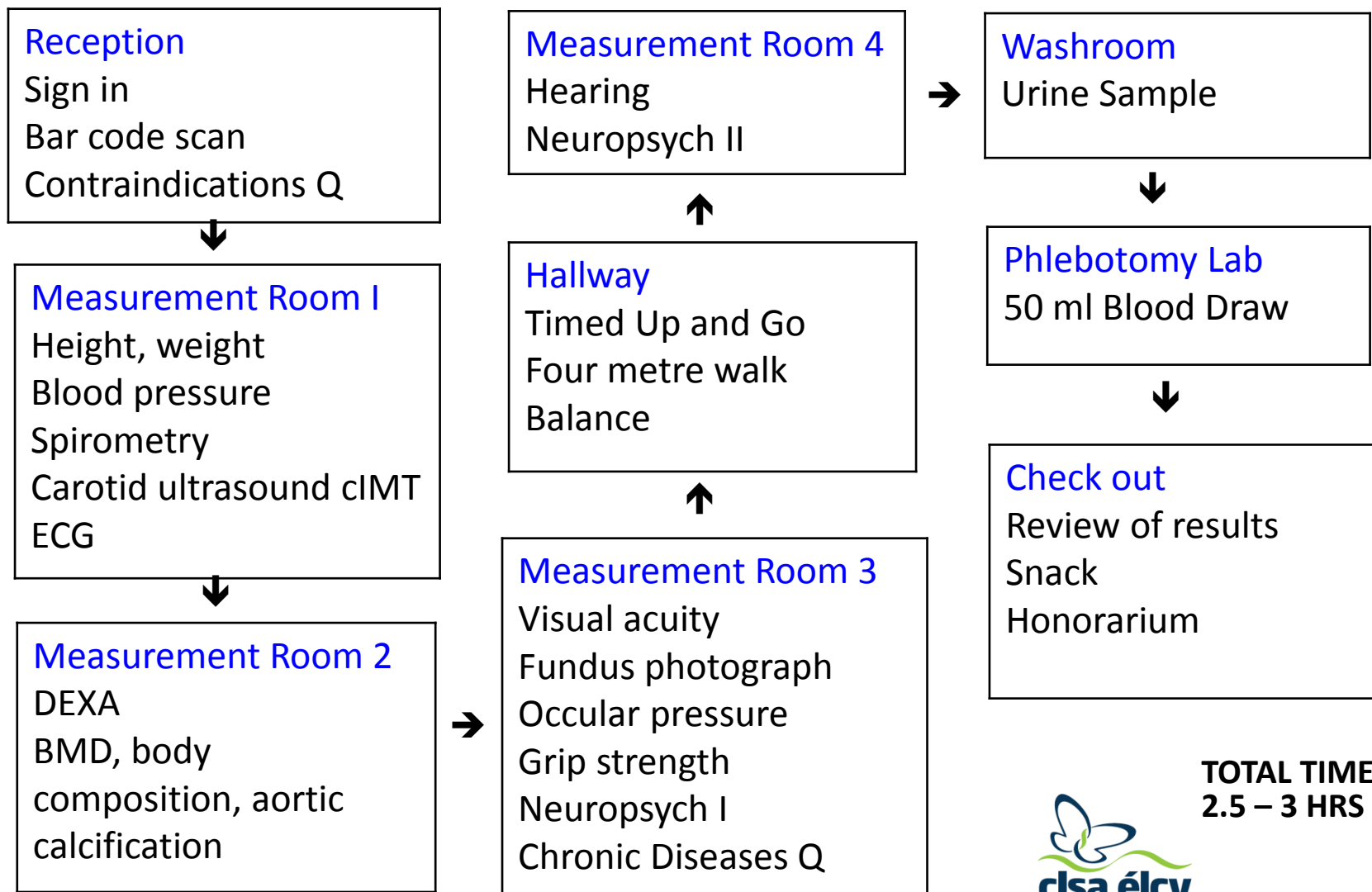








# At the Data Collection Site



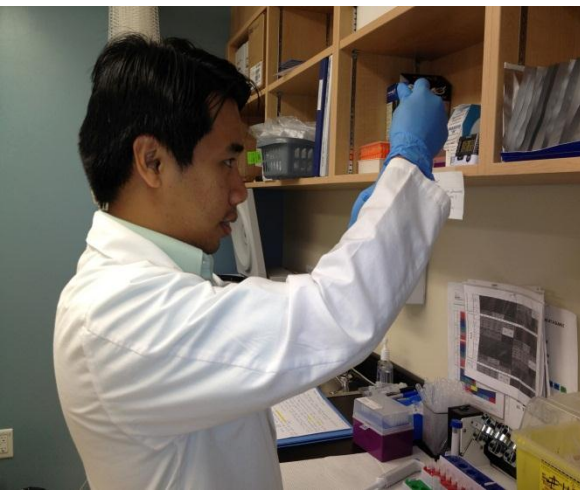
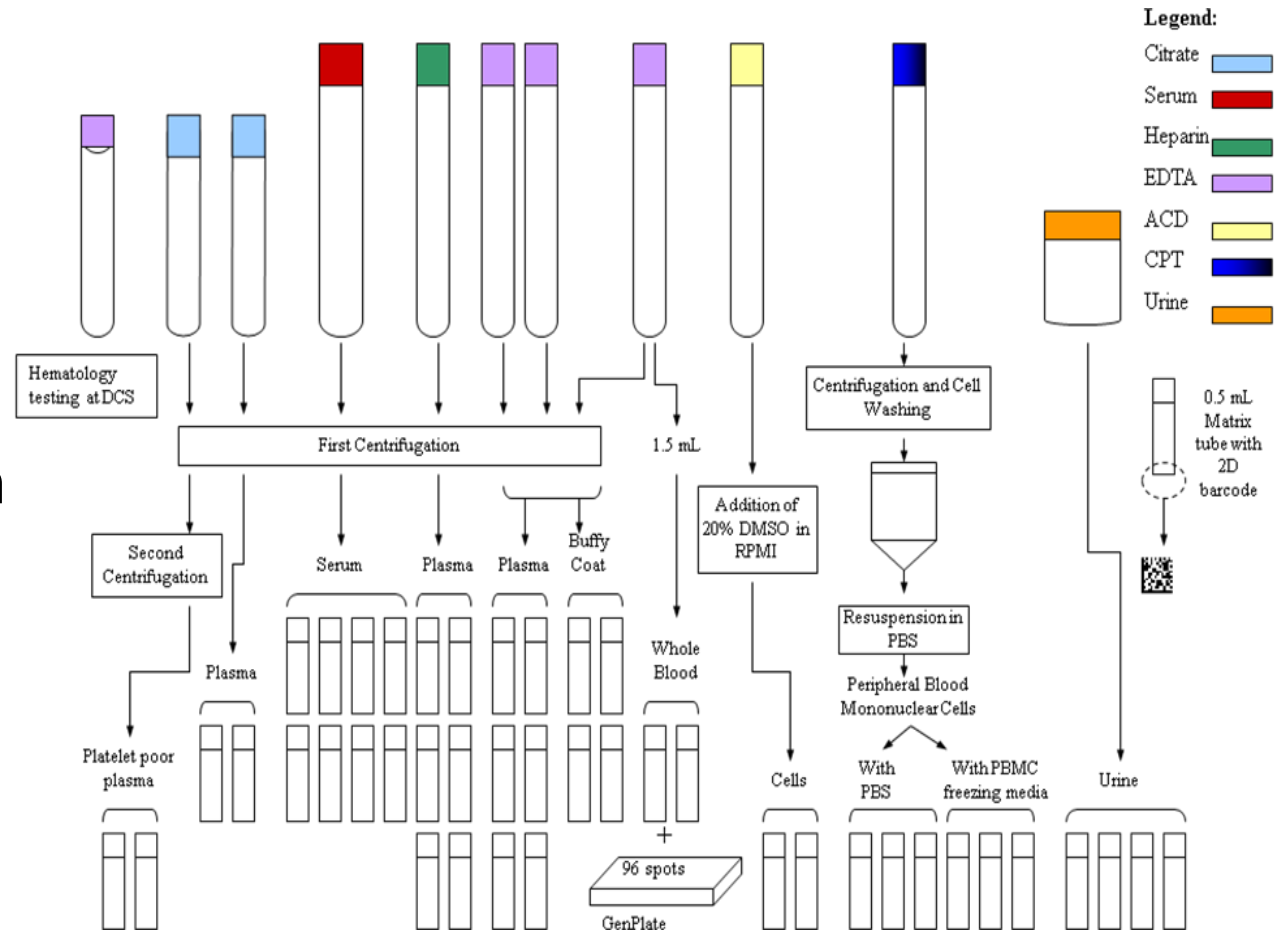
**TOTAL TIME**  
**2.5 – 3 HRS**



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# Bio specimen processing 42 aliquots per participant

- Basic hematological tests completed on site
- Remainder processed, frozen within 2 hrs

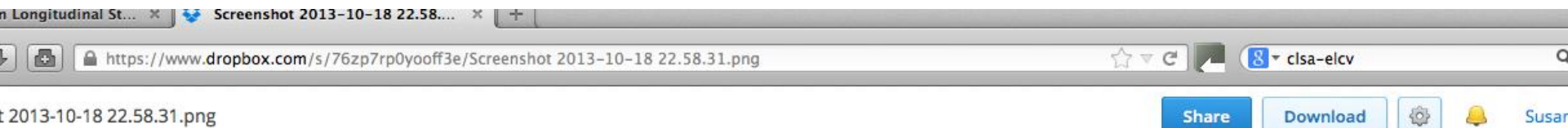


# Biorepository and Bioanalysis Centre (BBC)



- 31 nitrogen tanks (5 million aliquots)
- Personal Archive, dry storage, humidity controlled, at room temperature
- LIMS (LabWare)
- CryoMORE, (Air Liquide) safety monitoring system

# www.clsa-elcv



A screenshot of the CLSA website homepage. The browser window shows the URL www.clsa-elcv.ca. The website features the CLSA logo, navigation links for 'About Us', 'Participants', 'Privacy', 'Data Collection Sites', 'Enabling Units', 'Partners', and 'Researchers'. A large banner image shows a group of people at a ribbon-cutting ceremony, with the caption 'Halifax Launch, January 2013'. To the right of the image, there is a 'Watch our videos' button and the text 'Canadian Longitudinal Study on Aging'. Below this, a progress bar indicates '31,239 Participants so far' out of a '50,000 goal'. The page also includes a 'Font Size' selector, a 'Language' dropdown set to 'en fr', and a search bar. Social media icons for Facebook, Twitter, and YouTube are also present.

# Milestones

- Past half way mark for recruitment, baseline data collection
- Coordinated REB process
- Automated quality assurance, quality control
- Data cleaning, coding process established
- Development of data dissemination protocol
- Collaborations with other large national initiatives
- ELSI protocols for identifying cognitive decline, proxy decision makers, proxy information providers, withdrawal options



# Data and Sample Access

- Data and samples available to the research community
- Guiding principles
  - Rights and privacy of participants must be protected
  - Confidentiality and security of data must be safeguarded
  - Data and samples made available in timely manner
  - Data and samples can only be used for research purposes
  - No exclusive access
  - Cost neutral

# Data and Sample Access: Process

- 20,000 Telephone Interviews: anticipate 1<sup>st</sup> release of data Spring 2014
- 30,000 Data Collection Site Visits: anticipate 1<sup>st</sup> release of data after baseline complete ~Spring 2016
- Application process via CLSA website portal
- Review: Administrative, Data and Sample Access Committee recommendation
- Approval, data/sample sharing agreements
- Return of derived variables to CLSA dataset
- Ancillary Studies (Studies that require additional data collection on all or subset of participants) in Wave 2

# Upcoming areas of interest and development for the CLSA

- Planning and development underway for Wave 2
- Core biomarker analysis
- Structural and functional brain imaging
- Epigenetics
- Veteran's health
- Environmental exposures
- Assistive technologies, accelerometry
- Coordinated linkage with administrative data bases
- Data sharing, including biological samples
- Data harmonization



# CLSA by the numbers

- 50,000 participants
- 20 years to complete the study
- Up to 140,000 telephone interviews
- Up to 210,000 home interviews
- Up to 210,000 visits to data collection sites
- Up to 8,820,000 biospecimen aliquots
- Up to 300,000 follow-up calls
- Up to 129 million questions asked during telephone interviews
- Up to 219 million data points collected during CLSA home interviews and visits to data collection sites
- Up to 348 million data points will form the CLSA research platform



# CLSA Site Leads Data Collection Sites

- Debra Sheets, Lynn Young, **Victoria**
- Andrew Wister and Max Cynader, **Vancouver**
- David Hogan, **Calgary**
- Verena Menec, **Winnipeg**
- Parminder Raina, **Hamilton**
- Vaness Taler, **Ottawa**
- Christina Wolfson, **Montreal**
- Hélène Payette, **Sherbrooke**
- Susan Kirkland, **Halifax**
- Gerry Mugford, **St. John's**





## *Transforming Everyday Life into Extraordinary Ideas*



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**[www.clsa-elcv.ca](http://www.clsa-elcv.ca)**

